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**EXPLORONS  
LES POSSIBLES**

Pour une **transition énergétique  
soutenable et économique**



**EUBCE 2023**

31st European Biomass Conference & Exhibition

5 - 8 JUNE CONFERENCE & EXHIBITION

9 JUNE TECHNICAL TOURS

In-person, online  
Bologna, Italy



## **European climate and energy legislation: Tower of Babel or a strategic approach? The view of the industry**

**Industry Track IAO.2 – Monday 05 June 2023**  
**Introduction by G. BOISSONNET, CEA I-Tésé**

# 1. **About regulations in the EU27 ?**

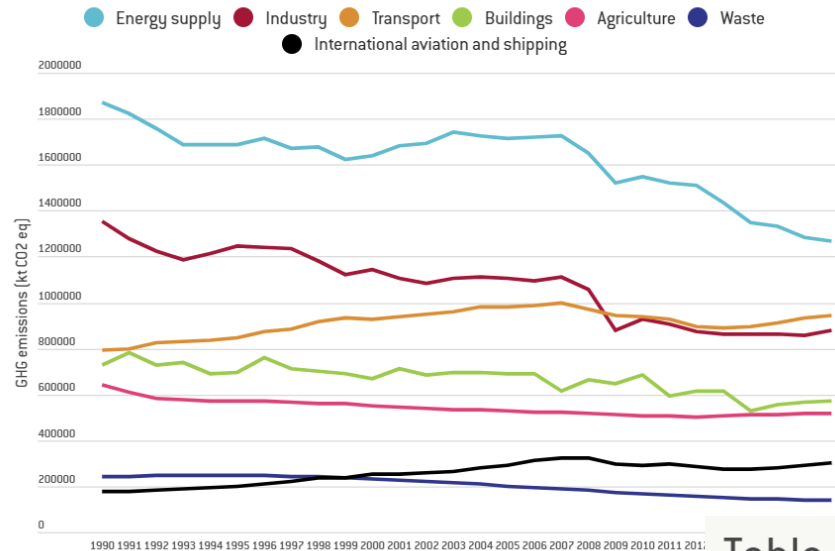


# Greenhouse gas emissions evolution

## The « fit for 55 » package



Greenhouse gas emissions by sector



Bruegel on data from European Environment Agency, available at: <https://www.eea.europa.eu/data-and-maps/daviz/ghg-aggregated-sector-5#tab-dashboard-02>

Note that buildings refers to residential and commercial as defined by the EEA. This does not include public electricity and unlike other estimates.

**Greenhouse gas emissions don't decrease fast enough**

**More ambitious targets**

Table 1: Evolution of EU climate targets

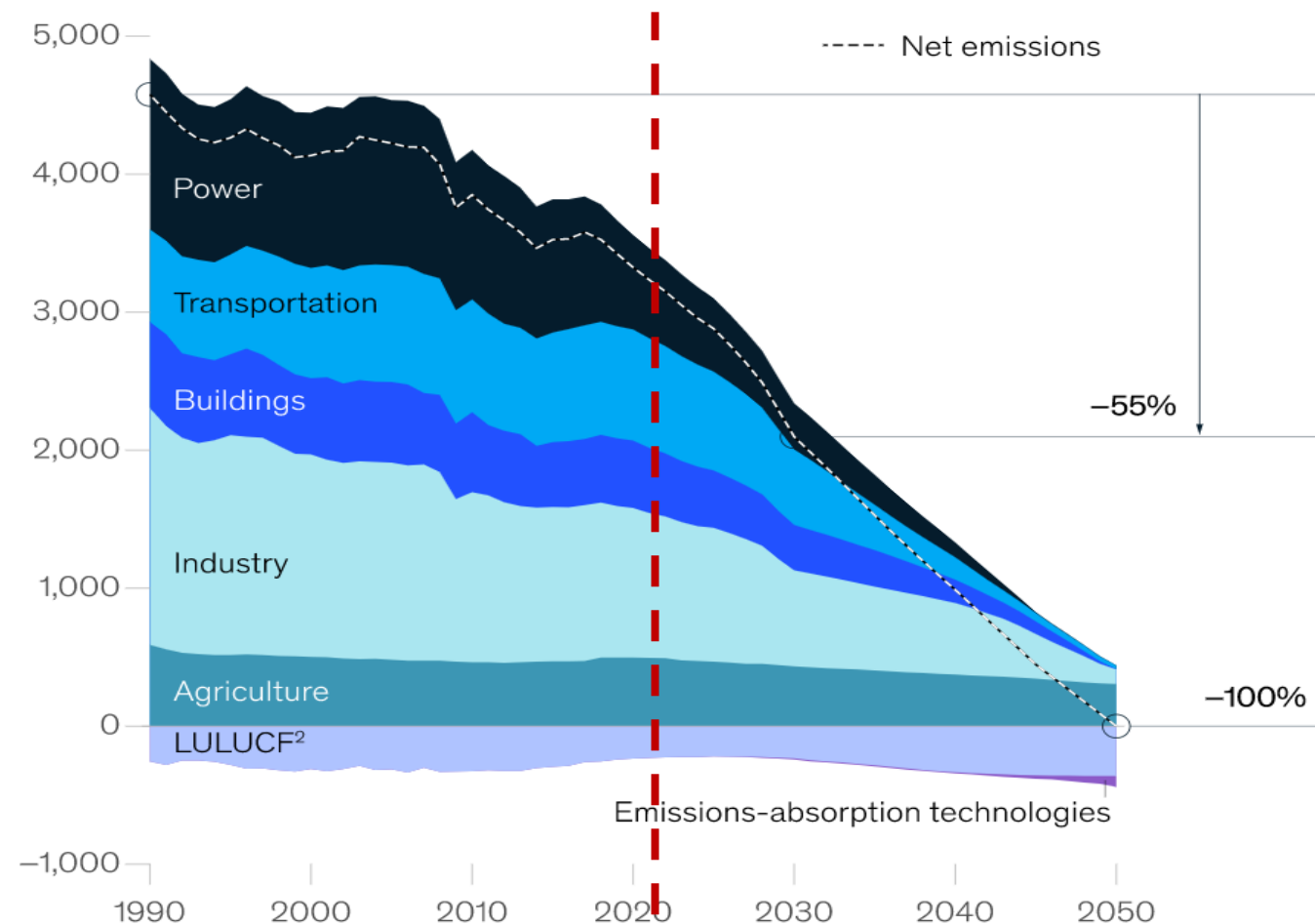
	2020	2030 framework (2014)	2030 framework (Fit for 55)
Emissions reduction target (Compared to 1990)	20%	40%	At least 55%
Renewable energy target(In total energy consumption)	20%	At least 32%	40% [Proposed]
Energy efficiency target(Compared to baseline scenario)	20%	At least 32.5%	36%[Proposed]

Source: Bruegel based on European Commission.

# Long is the road, short is the time

Total emissions per sector in cost-optimal pathway for EU-27,<sup>1</sup> megatons of carbon dioxide equivalent

- Around 2 Gt reduction in the previous 30 years
- About 3 Gt reduction needed in the next 15 years



<sup>1</sup>Excluding international aviation and shipping.

<sup>2</sup>Land use, land-use change, and forestry entails all forms in which atmospheric CO<sub>2</sub> can be captured or released as carbon in vegetation and soils in terrestrial ecosystems.

Source: UNFCCC; McKinsey analysis

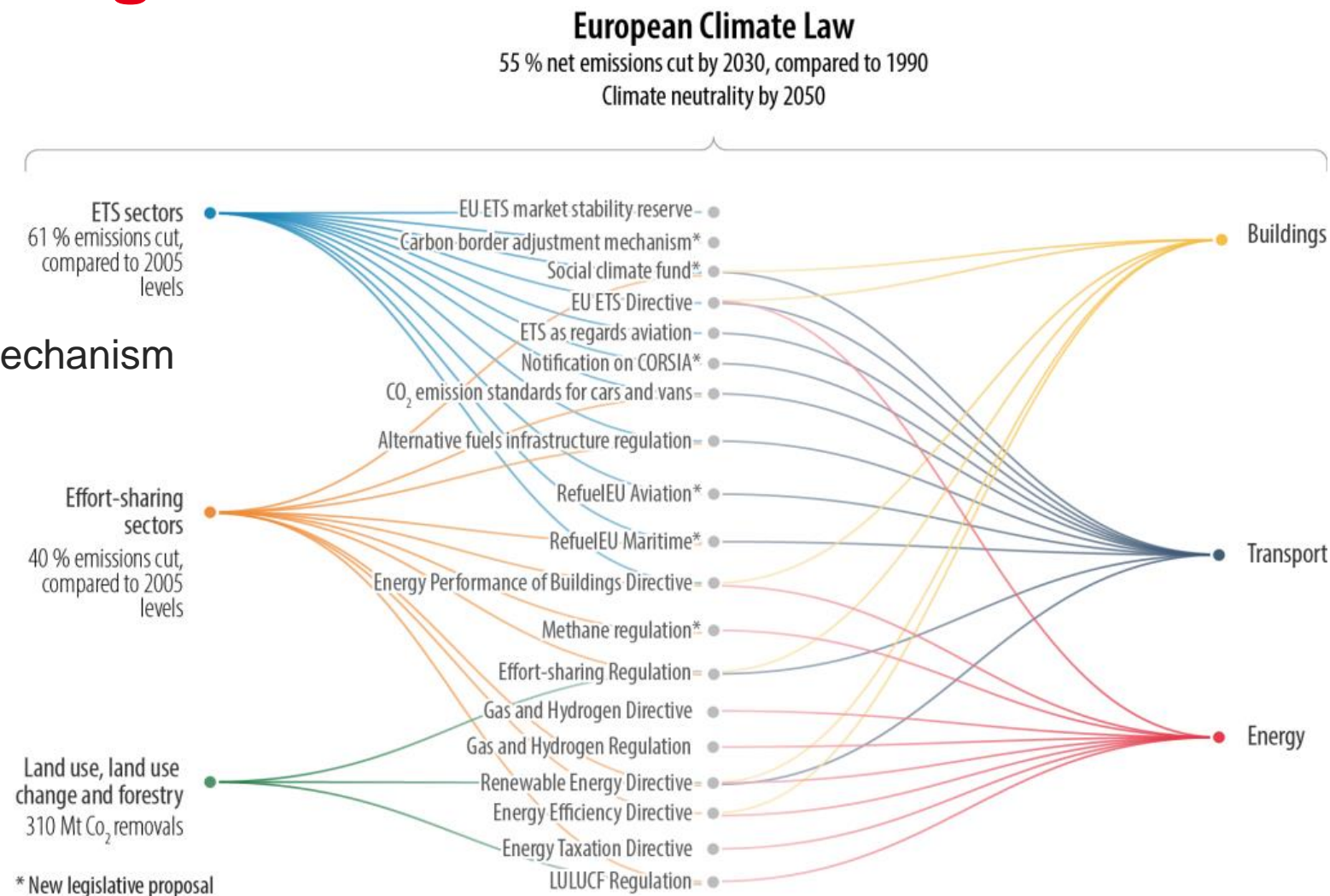
Source : <https://www.mckinsey.com/capabilities/sustainability/our-insights/how-the-european-union-could-achieve-net-zero-emissions-at-net-zero-cost/>

# European Climate Law – New Green Deal Fit for 55 package: A lot of measures

Emission Trading System  
(ETS)

Carbon Border Adjustment Mechanism  
(CBAM)

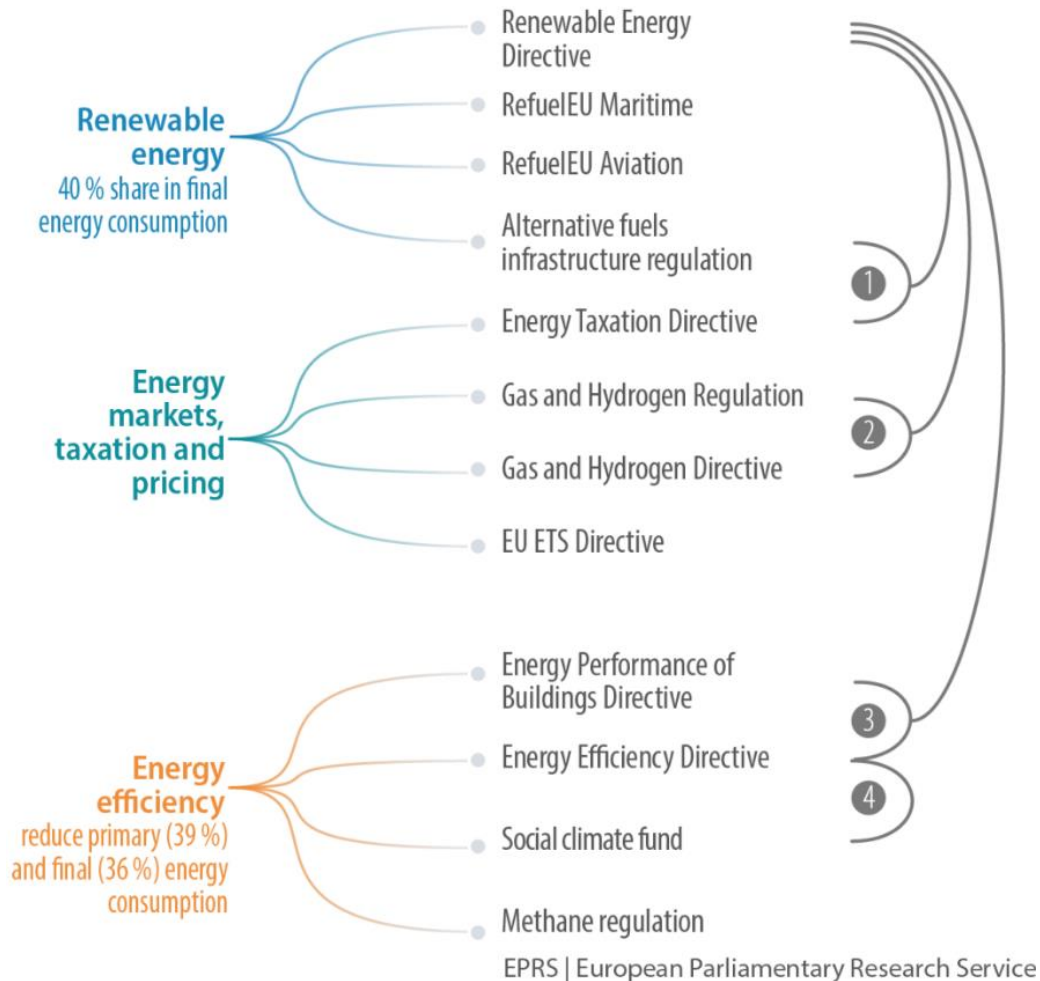
Effort Sharing Regulation  
(ESR)





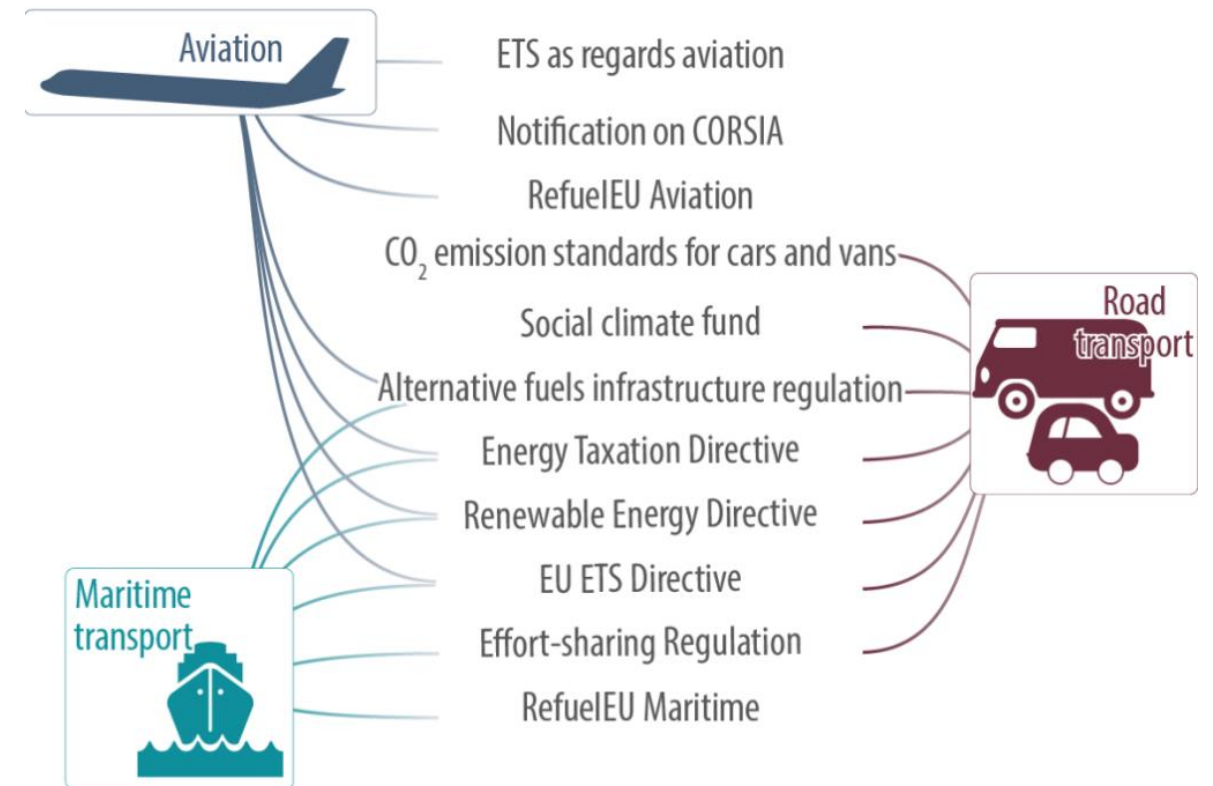
# Fit for 55 package – focus on energy and transport

## Energy: at the heart of the climate neutrality transition



## Transport: a challenging sector for climate action

6 legislative proposals to reduce transport emissions



EPRS | European Parliamentary Research Service

# To sum up

## Fit for 55 package

### Energy

- RED
- Energy efficiency
- Energy taxation

### Transport

- ReFuelEU Aviation
- FuelEU Maritime
- Alternative fuels infrastructure
- CO2 standards

### Emission reductions

- EU ETS
- CBAM
- ESR
- LULUCF
- Forest strategy
- Climate Social Fund

Emission Trading System  
Carbon Border Adjustment Mechanism  
Effort Sharing Regulation  
Land Use, Land-Use Change and Forestry

**Specific changes may occur in RED III ? under discussion**

# Example : Sustainable Alternative Fuels

The Fit for 55 package affects all industrial sectors. In particular Aviation and Maritime

Aviation : **three particular proposals**

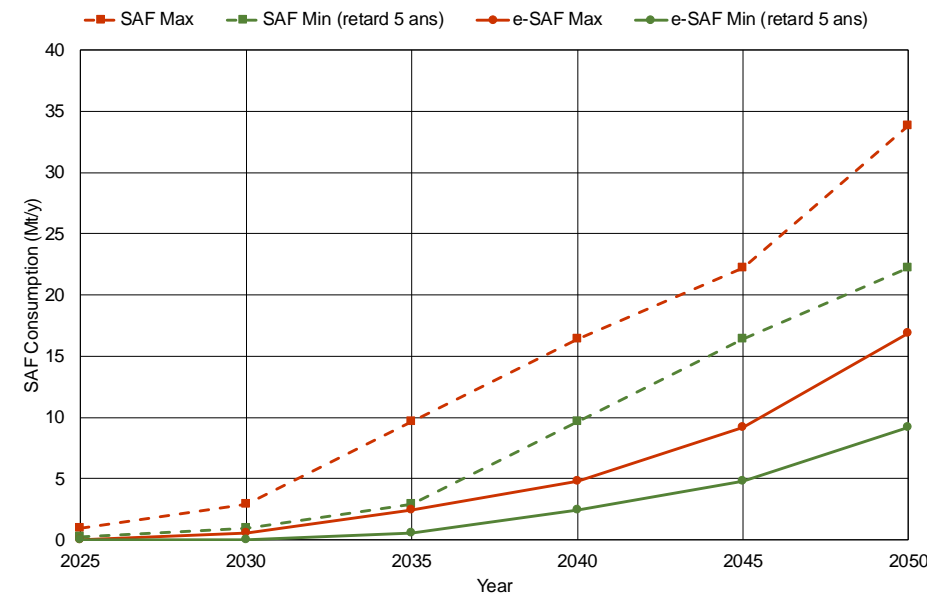
- ❑ The ETS Directive regarding Aviation
- ❑ Notification on Corsia
- ❑ **ReFuelEU Aviation Regulation**

2019 Europe demand (incl. international bunker) : **48.3 Mt**

Shipping : **four particular proposals**

- ❑ The European Trading System Directive
- ❑ The Alternative Fuels Infrastructure Regulation
- ❑ The Energy Taxation Directive
- ❑ **ReFuelEU Maritime Regulation**

	Percentage of SAF in <b>air</b> transport	sub-mandate synthetic fuels (or e-fuels)	Percentage SAF used in <b>shipping</b> transport
2025	2%	0%	2%
2030	<b>6%</b>	<b>1%</b>	6%
2035	<b>20%</b>	<b>5%</b>	13%
2040	<b>34%</b>	<b>10%</b>	26%
2045	46%	19%	59%
2050	70%	35%	75%





# In this framework some additional constraints

## Still discussing and moving!

- Policies and regulations are still moving: **EU members have different energy mix priorities**
- Demand, transition dynamic and resources not always taken into account
- End of engines for cars by 2035 (voted in 2022)
  - Discussed again in 2023 → engine with biofuels (Italy) ? efuels (Germany) ?
- No Biomass use increase by 2030 (EU Parliament proposal – REDIII (?))
- No fossil CO2 recycling use for CCU (?)
- Hydrogen : only renewable ? Low carbon ? On grid / off grid ?

**Industry : need for a clear, stable vision over the next 15 to 20 years**  
**Are scientific inputs taken into account ?**

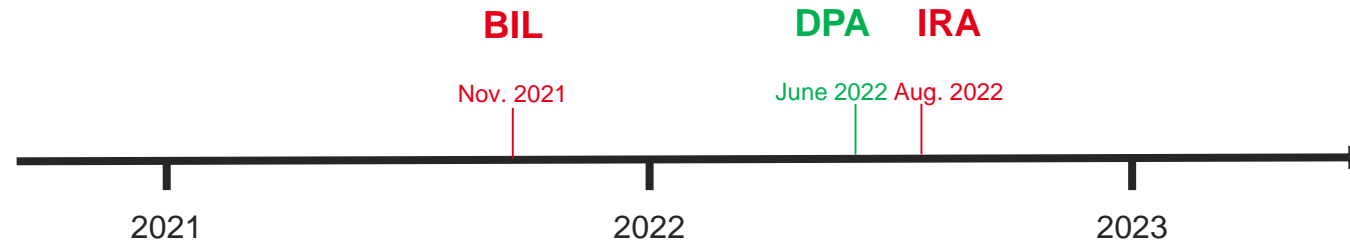
# **2. Inflation Reduction Act**



# Inflation Reduction Act

## \$450B in US Energy System

IRA follows 3 other specific acts → massive investment in energy (and economic protectionism)



- 2021/11: Bipartisan Infrastructure Law (BIL)
  - \$63B: Long term investment in infrastructures
  - For ex : 8 Mds\$ funds for 6 to 10 hydrogen hubs (2022 to 2026) / 1,5 Md\$ for RD&D
- 2022/07: Chips and Science Act
  - \$280B: science and innovation to boost American competitiveness
- 2022/06 Defence production act (DPA)
  - Priority to strategic "vital to national defence" internal market
  - Priority for government orders
- 2022/08 Inflation Reduction Act (IRA)
  - \$391B for clean energy

# Inflation Reduction Act

- 430 Billion \$ expenses → 700 Billion \$ expected revenues
- Tax credits into law
  - Markets
  - Finance
  - Social (good paying jobs)
  - Re-industrialisation
  - Environment
- Loan valid for 10 years → climate of security for investors
  - Example : The Clean Hydrogen Production Credit (45V) provides a tax credit of up to \$3/kgH<sub>2</sub>.
- Clear message sent to industry:
  - Very strong announcement effect
  - Generous credits available
  - Apparent simplicity of the procedures for allocating these credits
- BUT...
  - Putting these rules into practice runs up against the same obstacles as those encountered in Europe, with the risk that the incentives put in place could become perverse.
  - Despite the IRA coming into force, manufacturers are waiting for the calculation rules to be published by the Treasury Department in 2023.



**And then...**

**It takes 10 years to build/start a new plant**

**Do the US introduce incentives ?**

**First Re-industrialise and then defossilise?**

**Does EU Introduce constraints ?**

**First defossilise and then re-industrialise ?**